PART M
MOTOR VEHICLES, MECHANIZED EQUIPMENT, AND MARINE OPERATIONS

WAC 296-155-600 Definitions applicable to this part.

(1) **"Apron"** means the area along the waterfront edge of the pier or wharf.

(2) **"Bearing cap"** means:

(a) A slab of reinforced concrete or a heavy timber and plank platform covering the top of a group of piles for the purpose of typing them together and transmitting to them as a group the superimposed load.

(b) A metal plate placed across the top of a steel tube pile to distribute the load from the steel tube to the concrete.

(3) **"Bearing pile"** means a column of wood, metal or concrete or a combination of two or more of these materials, driven, jacked, or sunk with a water jet, into the earth to transmit and distribute loads to strata below the surface.

(4) **"Bulwark"** means the side of a ship above the upper deck.

(5) **"Caisson pile"** means a concrete pile case in an outer casing consisting of a series of telescoping steel tubes, the top section being the largest and usually twenty inches or more in diameter.

(6) **"Coaming"** means the raised frame, as around a hatchway in the deck, to keep out water.

(7) **"Composite pile"** means a pile which consists of a concrete pile superimposed on a wood pile.

(8) **"Jacob's ladder"** means a marine ladder of rope or chain with wooden or metal rungs.

(9) (a) A **"pedestal type"** concrete pile means a cast-in-place pile with an enlarged (mushroom) base or foot.

(b) A **"tapered type"** concrete pile means a cast-in-place pile cast in a tapered metal shell.

(10) **"Precast concrete pile"** means a pile which is cast in a form above ground.

(11) **"Driving cap"** means a device placed on the top of a pile to prevent its breakage or injury during the driving operation.

(12) **"H-pile"** means a pile formed of a structural steel column of "H" section.

(13) **"Pile driver"** means a device or piece of equipment used in driving piles.

(14) **"Pretest or jack pile"** means a steel cylinder pile driven in section beneath an existing building and filled with concrete.

(15) **"Rail,"** for the purpose of WAC 296-155-630, means a light structure serving as a guard at the outer edge of a ship's deck.

(16) **"Sheet piling"** means a continuous vertical barricade consisting of squared timbers driven edge to edge, either square edged or tongued and grooved, or of a series of inter- locking steel shapes, to form a temporary wall about an excavation, and shored and braced as necessary.

WAC 296-155-600 (Cont.)

(17) **"Steel-tube"** means a concrete-filled steel cylinder, consisting of an open or closed-end steel tube or cylinder.

(18) **"Wood pile"** means a pile which is formed from the trunk of a tree or dimension timbers.
[Order 74-26, § 296-155-600, filed 5/7/74, effective 6/6/74.]

WAC 296-155-605 Equipment.

(1) General requirements.

(a) All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment.

(b) All tire servicing of multi-piece and single-piece rim wheels are subject to the requirements of WAC 296-155-61701 through 296-155-61713.

(c) (i) Heavy machinery, equipment, or parts thereof, which are suspended or held aloft by use of slings, hoists, or jacks shall be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them. Bulldozer and scraper blades, end-loader buckets, dump bodies, and similar equipment, shall be either fully lowered or blocked when being repaired or when not in use. All controls shall be in a neutral position, with the motors stopped and brakes set, unless work being performed required otherwise.

(ii) Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines shall have the wheels chocked and the parking brake set.

(d) The use, care and charging of all batteries shall conform to the requirements of part I of this chapter.

(e) All cab glass shall be safety glass, or equivalent, that introduces no visible distortion affecting the safe operation of any machine covered by this part.

(f) All equipment covered by this part shall comply with the requirements of WAC 296-155-525 (3)(a) when working or being moved in the vicinity of power lines or energized transmitters.

(g) Where traffic is diverted onto dusty surfaces, good visibility shall be maintained by the suppression of dust, through the periodic application of oil or water to the grade surface, as required.

(h) No equipment, vehicle, tool, or individual shall operate within 10 feet of any power line or electrical distribution equipment except in conformity with the requirements of WAC 296-155-525 (3)(a).

(2) Specific requirements. (Reserved.)
[Statutory Authority: RCW 49.17.010, .040, .050,.060 RCW. 98-05-046 (Order 97-10), 296-155-605, filed 2/13/98, effective 4/15/98. RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), 296-155-605, filed 1/21/86; Order 74-26, 296-155-605, filed 5/7/74, effective 6/6/74.]

WAC 296-155-610 Motor vehicles.

(1) Coverage. Motor vehicles as covered by this part include any vehicles that operate on a construction site. The requirements of this section do not apply to equipment for which rules are prescribed in WAC 296-155-615.

(2) General requirements.

(a) All vehicles shall have a service brake system, an emergency brake system, and a parking brake system. These systems may use common components, and shall be maintained in operable condition.

(b) Before leaving a motor vehicle unattended:

(i) The motor shall be stopped.

(ii) Parking brake engaged and wheels turned into curb or berm when parked on an incline.

(iii) When parking on an incline and there is no curb or berm, the wheels shall be chocked or otherwise secured.

(c) (i) Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition.

(ii) All vehicles, or combination of vehicles, shall have brake lights in operable condition regardless of light conditions.

(d) All vehicles shall be equipped with an adequate audible warning device at the operator's station and in an operable condition.

(e) Operating vehicles other than passenger cars and pickups, with an obstructed view to the rear.

Employers must prohibit the use of any motor vehicle equipment that has an obstructed view to the rear unless the vehicle meets one of the following:

- Has an operable automatic reverse signal alarm audible above the surrounding noise level and audible no less than fifteen feet from the rear of the vehicle; OR
- Is backed up when an observer signals that it is safe to do so.

Reference: For requirements on operating dump trucks in reverse, see subsection (2)(f) of this section, Operating dump trucks in reverse.

Note: If the surrounding noise level is so loud that reverse signal alarms are not effective, then an observer must be used.

- An observer can be any individual at the construction site, except a person performing the duties of a flagger.

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- The observer must:

  - Be in a direct line-of-sight or able to communicate with the driver.
  - Be able to see the entire backing zone.
  - Continue to provide direction to the driver until:

    - The driver reaches the destination and stops;
      OR
    - There are no longer employees in the backing zone and it is reasonable to expect that no employee(s) will enter the backing zone.

(f) Operating dump trucks in reverse.

Before backing a dump truck the driver must determine that no one is currently in the backing zone and it is reasonable to expect that no employee(s) will enter the backing zone while operating the dump truck in reverse.

If employee(s) are in the backing zone or it is reasonable to expect that an employee(s) will enter the backing zone, you must make sure the truck is backed up only when:

(i) The vehicle has an operable automatic reverse signal alarm:

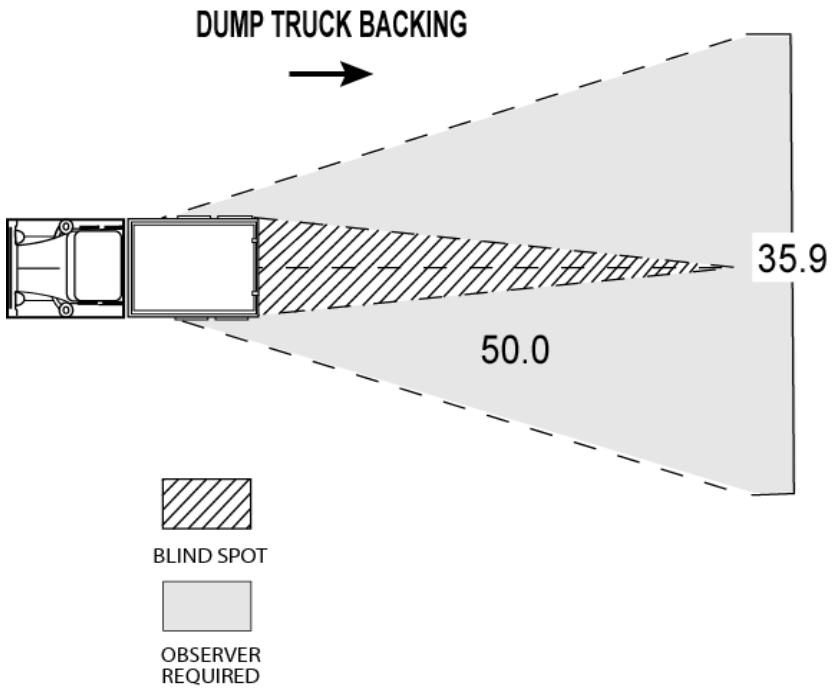
- Audible above the surrounding noise level;
  AND
- Audible no less than fifteen feet from the rear of the vehicle;
  AND

(ii) You must make sure that:

- An observer signals that it is safe to back;
  OR
- An operable mechanical device that provides the driver a full view behind the dump truck.

WAC 296-155-610 (Cont.)

Note: The following diagram defines the backing zone. Distances are reported in feet.



Exemption:

- Employees are considered protected when they are on the opposite side of a fixed barrier such as:

  - A jersey barrier;
  - Heavy equipment (such as a paving machine);
    OR
  - A six-inch concrete curb.

Note: The term "**dump trucks**" includes both belly and rear dump trucks with a minimum pay load of four yards.

(g) All vehicles with cabs shall be equipped with windshields, powered wipers, and rear view mirrors. Cracked and broken glass shall be replaced. Vehicles operating in areas or under conditions that cause fogging or frosting of the windshields shall be equipped with operable defogging or defrosting devices.

(h) All haulage vehicles, whose pay load is loaded by means of cranes, power shovels, loaders, or similar equipment, shall have a cab shield and/or canopy adequate to protect the operator from shifting or falling materials.

(i) Tools and material shall be secured to prevent movement when transported in the same compartment with employees.

(j) Vehicles used to transport employees shall have seats firmly secured and adequate for the number of employees to be carried.

WAC 296-155-610 (Cont.)

(k) Seat belts and anchorages meeting the requirements of 49 CFR Part 571 (Department of Transportation, Federal Motor Vehicle Safety Standards) shall be installed in all motor vehicles.

(l) Trucks with dump bodies or raiseable platforms, beds, or boxes shall be equipped with positive means of support, permanently attached, and capable of being locked in position to prevent accidental lowering of the body while maintenance or inspection work is being done.

(m) Operating levers, controlling hoisting or dumping devices on haulage bodies, shall be equipped with a latch or other device which will prevent accidental starting or tripping of the mechanism.

(n) Trip handles for tailgates of dump trucks shall be so arranged that, in dumping, the operator will be in the clear.

(o) All rubber-tired motor vehicle equipment manufactured on or after May 1, 1972, shall be equipped with fenders. All rubber-tired motor vehicle equipment manufactured before May 1, 1972, shall be equipped with fenders not later than October 1, 1974. Mud flaps may be used in lieu of fenders whenever motor vehicle equipment is not designed for fenders.

(p) All vehicles in use shall be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: Service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brakes); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects shall be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, steps and handholds for vehicle access, etc., where such equipment is necessary.

[Statutory Auhtority: RCW 49.17.010, .040, .050, and .060. 04-10-107 (Order 04-24), § 296-155-610, filed 05/05/04, effective 05/12/04. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-610, filed 1/21/86; Order 74-26, § 296-155-610, filed 5/7/74, effective 6/6/74.]

WAC 296-155-615 Material handling equipment.

(1) Earthmoving equipment; general.

(a) These rules apply to the following types of earth-moving equipment: Scrapers, loaders, crawler or wheel tractors, bulldozers, off-highway trucks, graders, agricultural and industrial tractors, and similar equipment. The promulgation of specific rules for compactors and rubber-tired "skid-steer" equipment is reserved pending consideration of standards currently being developed.

(b) Seat belts.

(i) Seat belts shall be provided on all equipment covered by this section and shall meet the requirements of the Society of Automotive Engineers, J386-1969, Seat Belts for Construction Equipment. Seat belts for agricultural and light industrial tractors shall meet the seat belt requirements of Society of Automotive Engineers J333a-1970, Operator Protection for Agricultural and Light Industrial Tractors.

(ii) Seat belts need not be provided for equipment which is designed only for standup operation.

WAC 296-155-615 (Cont.)

(iii) Seat belts shall not be provided for equipment which does not have rollover protective structure (ROPS) or adequate canopy protection.

(c) Access roadways and grades.

(i) No employer shall move or cause to be moved construction equipment or vehicles upon any access roadway or grade unless the access roadway or grade is constructed and maintained to accommodate safely the movement of the equipment and vehicles involved.

(ii) Every emergency access ramp and berm used by an employer shall be constructed to restrain and control runaway vehicles.

(d) Brakes. All earthmoving equipment mentioned in WAC 296-155-615 (1)(a) shall have a service braking system capable of stopping and holding the equipment fully loaded, as specified in Society of Automotive Engineers SAE-J237, Loader Dozer-197l, J236, Graders-1971, and J319b, Scrapers-1971. Brake systems for self-propelled rubber-tired off-highway equipment manufactured after January 1, 1972 shall meet the applicable minimum performance criteria set forth in the following Society of Automotive Engineers Recommended Practices:

Self-propelled scrapers	SAE J319b-1971
Self-propelled graders	SAE J236-1971
Truck and wagons	SAE J166-1971
Front-end loaders and dozers	SAE J237-1971

(e) Fenders. Pneumatic-tired earthmoving haulage equipment (trucks, scrapers, tractors, and trailing units) whose maximum speed exceeds 15 miles per hour, shall be equipped with fenders on all wheels to meet the requirements of Society of Automotive Engineers SAE J321a-1970, Fenders for Pneumatic-Tired Earthmoving Haulage Equipment. An employer may, of course, at any time seek to show under WAC 296-155-010, that the uncovered wheels present no hazard to personnel from flying materials.

(f) Rollover protective structures (ROPS). See Part V of this chapter for requirements for rollover protective structures and overhead protection.

(g) Rollover protective structures for off-highway trucks. The promulgation of standards for rollover protective structures for off-highway trucks is reserved pending further study and development.

(h) Specific effective dates-Brakes and fenders. Equipment mentioned in WAC 296-155-615 (d) and (e) and manufactured after January 1, 1972, which is used by any employer after that date, shall comply with the applicable rules prescribed therein concerning brakes. Equipment mentioned in WAC 296-155-615 (d) and (e) and manufactured before January 1, 1972, which is used by any employer after that date, shall meet the applicable rules prescribed herein not later than October 1, 1974. It should be noted that employers may request variations from the applicable brakes standards required by this part. Employers wishing to seek variations from the applicable brakes rules may submit any requests for variations in accordance with WAC 296-155-010. Any statements should specify how the variation would protect the safety of the employees by providing for any compensating restrictions on the operation of equipment.

WAC 296-155-615 (Cont.)

(i) Audible alarms.

(i) All bidirectional machines, such as rollers, compactors, front-end loaders, bulldozers, and similar equipment, shall be equipped with a horn, distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in either direction. The horn shall be maintained in an operative condition.

(ii) No employer shall permit earthmoving or compacting equipment which has an obstructed view to the rear to be used in reverse gear unless the equipment has in operation a reverse signal alarm distinguishable from the surrounding noise level or an employee signals that it is safe to do so.

(iii) In circumstances where the surrounding noise level is of such amplitude that reverse signal alarms are not effective, amber strobe lights shall be used.

(iv) Operators of equipment which does not have an obstructed view to the rear shall look to the rear while operating the equipment in reverse.

(j) Scissor points. Scissor points on all front-end loaders, which constitute a hazard to the operator during normal operation, shall be guarded.

(k) Tractor motors shall be cranked only by operators or other experienced persons.

(l) Waterproof and comfortable seat cushions shall be provided on tractors at all times when working.

(m) Riders, except mechanics and persons in training to operate equipment, shall not be allowed on equipment unless a seat with a seatbelt is provided and used.

(n) Winch lines shall be maintained in good condition and provided with spliced eye, knob or hook in working end, except under conditions where unspliced end is required.

(o) No repairs on blade or dozer equipment shall be initiated unless motor has been stopped and dozer blade is resting on the ground or securely blocked. The same shall apply to carry-all gates.

(p) Bulldozer blades and carryall gates shall rest on the ground or on blocking when machines are not in operation.

(q) Operator shall not leave controls of tractor with master clutch engaged.

(r) Personnel shall not get on or off machine while machine is in motion.

(s) Where excessive dust conditions are created, such areas shall be sprinkled with water to maintain dust at a minimum.

(t) Respirators shall be worn by operators when subject to harmful dust exposure.

WAC 296-155-615 (Cont.)

(2) Excavating and other equipment.

(a) Tractors covered in subsection (1) of this section shall have seat belts as required for the operators when seated in the normal seating arrangement for tractor operation, even though backhoes, breakers, or other similar attachments are used on these machines for excavating or other work.

(b) For the purposes of this part and of Part L of this chapter, the nomenclatures and descriptions for measurement of dimensions of machinery and attachments shall be as described in Society of Automotive Engineers 1970 Handbook, pages 1088 through 1103.

(c) The safety requirements, ratios, or limitations applicable to machines or attachment usage covered in Power Crane and Shovel Association's Standards No. 1 and No. 2 of 1968, and No. 3 of 1969, shall be complied with, and shall apply to cranes, machines, and attachments under this part.

(3) Lifting and hauling equipment (other than equipment covered under Part L of this chapter). Industrial trucks (including forklifts) shall meet the requirements of WAC 296-24-230, 296-155-605 and the following:

(a) Lift trucks, stackers, etc., shall have the rated capacity clearly posted on the vehicle so as to be clearly visible to the operator. When auxiliary removable counter-weights are provided by the manufacturer, corresponding alternate rated capacities also shall be clearly shown on the vehicle. These ratings shall not be exceeded.

(b) No modifications or additions which affect the capacity or safe operation of the equipment shall be made without the manufacturer's or professional engineer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals, shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.

(c) If a load is lifted by two or more trucks working in unison, the proportion of the total load carried by any one truck shall not exceed its capacity.

(d) Steering or spinner knobs shall not be attached to the steering wheel unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin. The steering knob shall be mounted within the periphery of the wheel.

(e) All high lift rider industrial trucks shall be equipped with overhead guards which meet the configuration and structural requirements as defined in paragraph 502 of American National Standards Institute B56.1-1975, Safety Standards for Powered Industrial Trucks.

(f) All industrial trucks in use shall meet the applicable requirements of design, construction, stability, inspection, testing, maintenance, and operation, as defined in American National Standards Institute B56.1-1975, Safety Standards for Powered Industrial Trucks.

(g) Unauthorized personnel shall not be permitted to ride on powered industrial trucks. A safe place to ride shall be provided where riding of trucks is authorized.

(h) When a forklift truck is used for elevating workers a platform shall be specifically built for that purpose and shall comply with the following requirements:

WAC 296-155-615 (Cont.)

(i) The platform shall be securely attached to the forks and shall have standard guardrails and toeboards on all open sides.

(ii) The hydraulic system of the forklift shall be so designed that the lift mechanism will not drop faster than one hundred thirty-five feet per minute in the event of a failure in any part of the system. Forklifts used for elevating platforms shall be identified that they are so designed.

(iii) A safety strap shall be installed or the control lever shall be locked to prevent the boom from tilting.

(iv) An operator shall be at the controls of the forklift equipment while persons are on the platform.

(v) The operator shall be in the normal operating position while raising or lowering the platform.

(vi) The vehicle shall not travel from point to point while workers are on the platform except that inching or maneuvering at very slow speed is permissible.

(vii) The area between workers on the platform and the mast shall be adequately guarded to prevent contact with chains or other shear points.

(viii) All platforms shall be visually inspected daily or before each use by the person in charge of the work being performed, and shall be tested as frequently as is necessary to maintain minimum safety factors.

(ix) Whenever a truck, except for high lift order picker trucks, is equipped with vertical hoisting controls elevatable with the lifting carriage or forks, the following precautions shall be taken for the protection of personnel being elevated.

(A) Provide a platform secured to the lifting carriage and/or forks.

(B) Provide means whereby personnel on the platform can shut off power to the truck.

(C) Provide such protection from falling objects as indicated necessary by the operating conditions.

[Statutory Authority: RCW 49.17.010, .040, .050. 00-01-176 (Order 99-18), § 296-155-615, filed 12/21/99, effective 03/01/2000. Statutory Authority: Chapter 49.17.010, .040, .050, .060 RCW. 98-05-046 (Order 97-10), 296-155-615, filed 2/13/98, effective 4/15/98. Chapter 49.17 RCW. 94-15-096 (Order 94-07), 296-155-615, filed 7/20/94, effective 9/20/94. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), 296-155- 615, filed 1/21/86; Order 74-26, 296-155-615, filed 5/7/74, effective 6/6/74.]

WAC 296-155-617 Servicing multipiece and single-piece rim wheels.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-617, filed 1/21/86.]

WAC 296-155-61701 Scope.

(1) Application. This section applies to the servicing of multipiece and single-piece rim wheels used on large vehicles such as trucks, tractors, trailers, buses and off-road machines. It does not apply to the servicing of rim wheels used on automobiles, or on pickup trucks and vans utilizing automobile tires or truck tires designated "LT."

(2) All provisions of this section apply to the servicing of both single-piece rim wheels and multipiece rim wheels unless designated otherwise.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-61701, filed 1/21/86.]

WAC 296-155-61703 Definitions.

(1) **"Barrier"** means a fence, wall or other structure or object placed between a single-piece rim wheel and an employee during tire inflation, to contain the rim wheel components in the event of the sudden release of the contained air of the single-piece rim wheel.

(2) **"Charts"** means the United States Department of Transportation, National Highway Traffic Safety Administration (NHTSA) publications entitled *Safety Precautions for Mounting and Demounting Tube-Type Truck/Bus Tires* and *Multipiece Rim Wheel Matching Chart,* or any other publications such as rim manuals containing, at a minimum, the same instructions, safety precautions and other information contained on those charts that are applicable to the types of rim wheels being serviced.

(3) **"Installing a rim wheel"** means the transfer and attachment of an assembled rim wheel onto a vehicle axle hub. **"Removing"** means the opposite of installing.

(4) **"Mounting a tire"** means the assembly or putting together of the wheel and tire components to form a rim wheel, including inflation. **"Demounting"** means the opposite of mounting.

(5) **"Multipiece rim wheel"** means the assemblage of a multipiece wheel with the tire tube and other components.

(6) **"Multipiece wheel"** means a vehicle wheel consisting of two or more parts, one of which is a side or locking ring designed to hold the tire on the wheel by interlocking components when the tire is inflated.

(7) **"Restraining device"** means an apparatus such as a cage, rack, assemblage of bars and other components that will constrain all rim wheel components during an explosive separation of a multipiece rim wheel, or during the sudden release of the contained air of a single-piece rim wheel.

(8) **"Rim manual"** means a publication containing instructions from the manufacturer or other qualified organization for correct mounting, demounting, maintenance, and safety precautions peculiar to the type of wheel being serviced.

(9) **"Rim wheel"** means an assemblage of tire, tube and liner (where appropriate), and wheel components.

(10) **"Service" or "servicing"** means the mounting and demounting of rim wheels, and related activities such as inflating, deflating, installing, removing, and handling.

(11) **"Service area"** means that part of an employer's premises used for the servicing of rim wheels, or any other place where an employee services rim wheels.

WAC 296-155-61703 (Cont.)

(12) **"Single-piece rim wheel"** means the assemblage of single-piece rim wheel with the tire and other components.

(13) **"Single-piece wheel"** means a vehicle wheel consisting of one part, designed to hold the tire on the wheel when the tire is inflated.

(14) **"Trajectory"** means any potential path or route that a rim wheel component may travel during an explosive separation, or the sudden release of the pressurized air, or an area at which an airblast from a single-piece rim wheel may be released. The trajectory may deviate from paths which are perpendicular to the assembled position of the rim wheel at the time of separation or explosion. (See Appendix A for examples of trajectories.)

(15) **"Wheel"** means that portion of a rim wheel which provides the method of attachment of the assembly to the axle of a vehicle and also provides the means to contain the inflated portion of the assembly (i.e., the tire and/or tube).

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-61703, filed 1/21/86.]

WAC 296-155-61705 Employee training.

(1) Employer responsibility. The employer shall provide a program to train all employees who service rim wheels in the hazards involved in servicing those multipiece rim wheels and the safety procedures to be followed.

(a) The employer shall assure that no employee services any rim wheel unless the employee has been trained and instructed in correct procedures of servicing the type of wheel being serviced, and in the safe operating procedures described in WAC 296-24-21711.

(b) Information to be used in the training program shall include, at a minimum, the applicable data contained in the charts (rim manuals) and the contents of this standard.

(c) Where an employer knows or has reason to believe that any of the employees are unable to read and understand the charts or rim manual, the employer shall assure that the employee is instructed concerning the contents of the charts and rim manual in a manner which the employee is able to understand.

(2) Employee qualification. The employer shall assure that each employee demonstrates and maintains the ability to service rim wheels safely, including performance of the following tasks:

(a) Demounting of tires (including deflation);

(b) Inspection and identification of the rim wheel components;

(c) Mounting of tires (including inflation with a restraining device or other safeguard required by this section);

(d) Use of the restraining device or barrier, and other equipment required by this section;

(e) Handling of rim wheels;

(f) Inflation of the tire when a single-piece rim wheel is mounted on a vehicle;

WAC 296-155-61705 (Cont.)

(g) An understanding of the necessity of standing outside the trajectory both during inflation of the tire and during inspection of the rim wheel following inflation; and

(h) Installation and removal of wheels.

(3) Ongoing training. The employer shall evaluate each employee's ability to perform these tasks and to service rim wheels safely and shall provide additional training as necessary to assure that each employee maintains his or her proficiency.

[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-155-61705, filed 7/20/94, effective 9/20/94. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-61705, filed 1/21/86.]

WAC 296-155-61707 Tire servicing equipment.

(1) Restraining device - Multipiece. The employer shall furnish a restraining device for inflating tires on multipiece wheels.

(2) Restraining device - Single-piece. The employer shall provide a restraining device or barrier for inflating tires on single-piece wheels unless the rim wheel will be bolted onto a vehicle during inflation.

(3) Restraining device requirements. Restraining devices and barriers shall comply with the following requirements:

(a) Each restraining device or barrier shall have the capacity to withstand the maximum force that would be transferred to it during a rim wheel separation occurring at one hundred fifty percent of maximum tire specification pressure for the type of rim wheel being serviced;

(b) Restraining devices and barriers shall be capable of preventing rim components from being thrown outside or beyond the device or barrier for any rim wheel position within or behind the device;

(c) Restraining devices and barriers shall be visually inspected prior to each day's use and after any separation of the rim wheel components or sudden release of contained air. Any restraining device or barrier exhibiting damage such as the following defects shall be immediately removed from service:

(i) Cracks at welds;

(ii) Cracked or broken components;

(iii) Bent or sprung components caused by mishandling, abuse, tire explosion or rim wheel separation;

(iv) Pitting of components due to excessive corrosion; or

(v) Other structural damage which would decrease its effectiveness.

(d) Restraining devices removed from service shall not be returned to service until they are repaired and reinspected. Restraining devices or barriers requiring structural repair such as component replacement or rewelding shall not be returned to service until they are certified either by the manufacturer or by a registered professional engineer as meeting the strength requirements of subsection (3)(a) of this section.

WAC 296-155-61707 (Cont.)

(4) Air line assembly. The employer shall furnish and assure that an air line assembly consisting of the following components be used for inflating tires:

(a) A clip-on chuck;

(b) An in-line valve with a pressure gauge or a presettable regulator; and

(c) A sufficient length of hose between the clip-on chuck and the in-line valve (if one is used) to allow the employee to stand outside the trajectory.

(5) Rim manuals. Current charts (rim manuals) containing instructions for the types of wheels being serviced shall be available in the service area.

(6) Rim manual availability. A current rim manual containing instructions for the type of rims being serviced shall be available in the service area.

(7) Recommended servicing tools. The employer shall furnish and assure that only tools recommended in the rim manual for the type of wheel being serviced are used to service rim wheels.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-61707, filed 1/21/86.]

WAC 296-155-61709 Wheel component acceptability.

(1) Interchange of components. Multipiece wheel components shall not be interchanged except as provided in the charts, or in the applicable rim manual.

(2) Inspection of components. Multipiece wheel components and single-piece wheels shall be inspected prior to assembly. Any wheel or wheel component which is bent out of shape, pitted from corrosion, broken or cracked shall not be used and shall be marked or tagged unserviceable and removed from the service area. Damaged or leaky valves shall be replaced.

(3) Condition of components. Rim flanges, rim gutters, rings, bead seating surfaces and the bead areas of tires shall be free of any dirt, surface rust, scale or loose or flaked rubber build-up prior to mounting and inflation.

(4) Compatibility check. The size (bead diameter and tire/wheel widths) and type of both the tire and the wheel shall be checked for compatibility prior to assembly of the rim wheel.

[Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-61709, filed 1/21/86.]

WAC 296-155-61711 Safe operating procedure-Multipiece rim wheels. The employer shall establish a safe operating procedure for servicing multipiece rim wheels and shall assure that employees are instructed in and follow that procedure. The procedure shall include at least the following elements:

(1) Deflation before demounting. Tires shall be completely deflated before demounting by removal of the valve core.

(2) Deflation on axle. Tires shall be completely deflated by removing the valve core, before a rim wheel is removed from the axle in either of the following situations:

(a) When the tire has been driven underinflated at eighty percent or less of its recommended pressure; or

(b) When there is obvious or suspected damage to the tire or wheel components.

WAC 296-155-61711 (Cont.)

(3) Rubber lubricant. Rubber lubricant shall be applied to bead and rim mating surfaces during assembly of the wheel and inflation of the tire, unless the tire or wheel manufacturer recommends against it.

(4) Inflation of tire while on vehicle. If a tire on a vehicle is underinflated but has more than eighty percent of the recommended pressure, the tire may be inflated while the rim wheel is on the vehicle provided remote control inflation equipment is used, and no employees remain in the trajectory during inflation.

(5) Tire bead. Tires shall be inflated outside a restraining device only to a pressure sufficient to force the tire bead onto the rim ledge and create an airtight seal with the tire and bead.

(6) Restraining device clearance. Whenever a rim wheel is in a restraining device the employee shall not rest or lean any part of the body or equipment on or against the restraining device.

(7) Inspection of components. After tire inflation, the tire and wheel components shall be inspected while still within the restraining device to make sure that they are properly seated and locked. If further adjustment to the tire or wheel components is necessary, the tire shall be deflated by removal of the valve core before the adjustment is made.

(8) Use of force. No attempt shall be made to correct the seating of side and lock rings by hammering, striking or forcing the components while the tire is pressurized.

(9) Damaged components. Cracked, broken, bent, or otherwise damaged rim components shall not be reworked, welded, brazed, or otherwise heated.

(10) Trajectory clearance. Whenever multipiece rim wheels are being handled, employees shall stay out of the trajectory unless the employer can demonstrate that performance of the servicing makes the employee's presence in the trajectory necessary.

(11) Wheel heating prohibition. No heat shall be applied to a multi-piece wheel or wheel component.
[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-155-61711, filed 7/20/94, effective 9/20/94. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-61711, filed 1/21/86.]

WAC 296-155-61713 Safe operating procedure-Single-piece rim wheels. The employer shall establish a safe operating procedure for servicing single-piece rim wheels and shall assure that employees are instructed in and follow that procedure. The procedure shall include at least the following elements:

(1) Deflation. Tires shall be completely deflated by removal of the valve core before demounting.

(2) Mounting and demounting. Mounting and demounting of the tire shall be done only from the narrow ledge side of the wheel. Care shall be taken to avoid damaging the tire beads while mounting tires on wheels. Tires shall be mounted only on compatible wheels of matching bead diameter and width.

(3) Lubricant. Nonflammable rubber lubricant shall be applied to bead and wheel mating surfaces before assembly of the rim wheel, unless the tire or wheel manufacturer recommends against the use of any rubber lubricant.

(4) Changing machine. If a tire changing machine is used, the tire shall be inflated only to the minimum pressure necessary to force the tire bead onto the rim ledge while on the tire changing machine.

(5) Bead expander. If a bead expander is used, it shall be removed before the valve core is installed and as soon as the rim wheel becomes airtight (the tire bead slips onto the bead seat).

WAC 296-155-61713 (Cont.)

(6) Inflation restrictions. Tires may be inflated only when contained within a restraining device, positioned behind a barrier or bolted on the vehicle with the lug nuts fully tightened.

(7) Inflation trajectory. Tires shall not be inflated when any flat, solid surface is in the trajectory and within one foot of the sidewall.

(8) Employee safety. Employees shall stay out of the trajectory when inflating a tire.

(9) Inflation pressure. Tires shall not be inflated to more than the inflation pressure stamped in the sidewall unless a higher pressure is recommended by the manufacturer.

(10) Seating tire bead. Tires shall not be inflated above the maximum pressure recommended by the manufacturer to seat the tire bead firmly against the rim flange.

(11) Prohibition on use of heat. No heat shall be applied to a single-piece wheel.

(12) Mixing tire and rim sizes. Employee shall be informed of the hazard created by mixing 16" and 16.5" tires and rims.

(13) Defective components. Cracked, broken, bent, or otherwise damaged wheels shall not be reworked, welded, brazed, or otherwise heated.

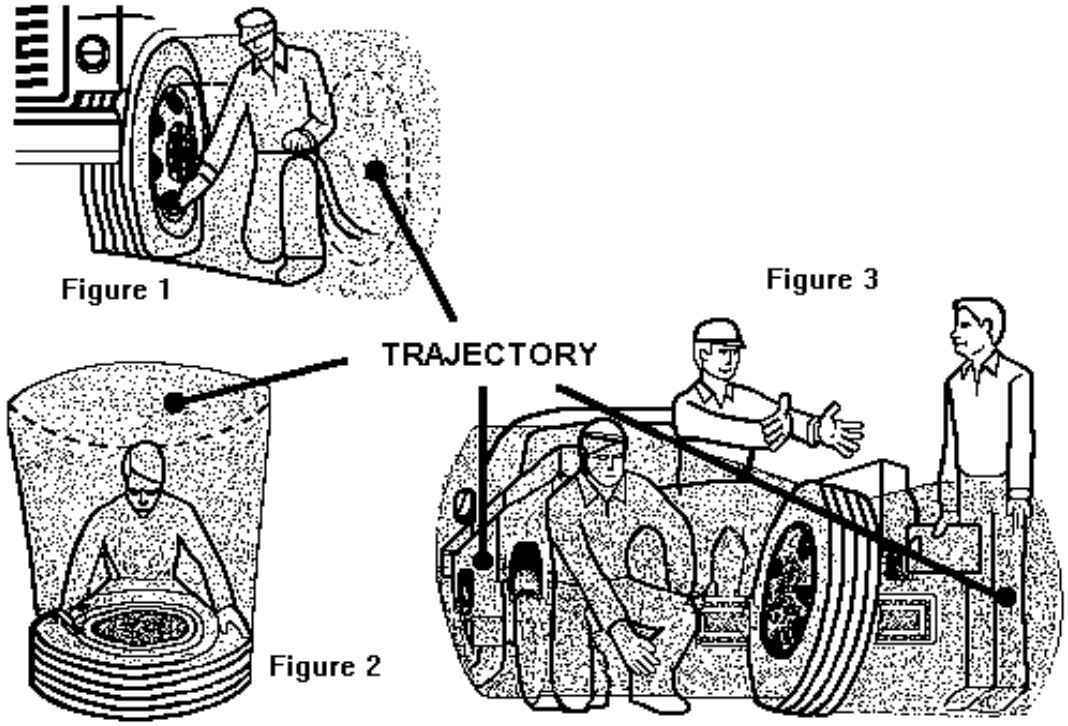
APPENDIX A
TRAJECTORY

WARNING

STAY OUT OF
THE TRAJECTORY AS
INDICATED BY SHADED AREA

WAC 296-155-61713 (Cont.)

Note: Under some circumstances, the trajectory may deviate from its expected path.



Appendix B-Ordering Information for NHTSA charts.

The NHTSA charts as part of a continuing campaign to alert rim wheel serving personnel of the industry accepted procedures for servicing multipiece rim wheels.

Prints of the charts are available through the Occupational Safety and Health Administration (OSHA) area offices. The address and telephone number of the nearest OSHA area office can be obtained by looking in the local telephone directory under U.S. Government, U.S. Department of Labor, Occupational Safety and Health Administration.

[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-155-61713, filed 7/20/94, effective 9/20/94. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-61713, filed 1/21/86.]

WAC 296-155-620 Pile driving equipment.

(1) General requirements.

(a) Boilers and piping systems which are a part of, or used with, pile driving equipment shall meet the applicable requirements of the American Society of Mechanical Engineers, Powers Boilers (section I).

(b) All pressure vessels which are a part of or used with, pile driving equipment shall meet the applicable requirements of the American Society of Mechanical Engineers, Pressure Vessels (section VIII).

WAC 296-155-620 (Cont.)

(c) Overhead protection, which will not obscure the vision of the operator, and which meets the requirements of Part L of this chapter, shall be provided. Protection shall be of 2-inch planking or other solid material of equivalent strength.

(d) Stop blocks shall be provided for the leads to prevent the hammer from being raised against the head block.

(e) A blocking device, capable of safely supporting the weight of the hammer shall be provided for placement in the leads under the hammer at all times while employees are working under the hammer.

(f) Guards shall be provided across the top of the head block to prevent the cable from jumping out of the sheaves.

(g) When the leads must be inclined in the driving of batter piles, provisions shall be made to stabilize the leads.

(h) All working equipment shall be visually inspected at the beginning of each shift.

(i) Fixed leads shall be provided with ladder, and adequate rings, or similar attachment points, so that the loft workers may engage their full body harness lanyard to the leads. If the leads are provided with loft platform(s) such platform(s) shall be protected by standard guardrails.

(j) Pile drivers with swinging leads shall have a wire rope safety strap on top end.

(k) Spud bars shall be of hard wood with smooth round handle end for safe handling. Iron shod spud bars are prohibited.

(l) A follower block or driving cap shall be used with a drop hammer on all piling except sheet piling.

(m) Steam hose leading to a steam hammer or jet pipe shall be securely attached to the hammer with an adequate length of at least 1/4-inch diameter chain or cable to prevent whipping in the event the joint at the hammer is broken. Air hammer hoses shall be provided with the same protection as required for steam lines.

(n) Safety chains, or equivalent means, shall be provided for each hose connection to prevent the line from thrashing around in case the coupling becomes disconnected.

(o) Steam line controls shall consist of two shutoff valves, one of which shall be a quick-acting lever type within easy reach of the hammer operator.

(p) Guys, outriggers, thrustouts, or counterbalances shall be provided as necessary to maintain stability of pile driver rigs.

(q) Ladders constructed in compliance with this chapter shall be installed on all pile drivers from the hoist platform to the head block, and in such position that workers using ladders will not come in contact with lines, sheaves, etc.

(r) Drop hammers which have been chipped on the face shall not be used for pile driving.

WAC 296-155-620 (Cont.)

(s) Groove worn drums or spools shall be replaced or properly repaired to present a smooth working surface.

(t) At least two full wraps of cable shall be maintained on hoisting drums.

(u) Proper racks shall be provided for storage of cross-cut saws.

(v) Every hoisting drum used as a pile driver shall be equipped with manually operated dogs or pawls to hold suspended loads. Foot brakes shall only be used to hold suspended loads until drum dogs are engaged. The dogs shall be visible from the operator's station or be equipped with a positive direct connected telltale which shall be visible to the operator.

(w) No counterweight or spring arrangement on dogs shall be permitted which would allow dog to be automatically disengaged either by relieving the load or rolling the drum.

(x) In every crew there shall be designated signalperson. The driver operator or drum person shall receive signals from no others, except when loftworker is above. The hammer shall not be lowered except on the loftworker's signal.

(y) Spliced hammer lines shall not be used.

(2) Pile driving from barges and floats. Barges or floats supporting pile driving operations shall meet the applicable requirements of WAC 296-155-630.

(3) Pile driving equipment.

(a) Engineers and winchperson shall accept signals only from the designated signalperson.

(b) All employees shall be kept clear when piling is being hoisted into the leads.

(c) When piles are being driven in an excavated pit, the walls of the pit shall be sloped to the angle of repose or sheet-piled and braced.

(d) When steel tube piles are being “blown out,” employees shall be kept well beyond the range of falling materials.

(e) When it is necessary to cut off the tops of driven piles, pile driving operations shall be suspended except where the cutting operations are located at least twice the length of the longest pile from the driver.

(f) When driving jacked piles, all access pits shall be provided with ladders and bulkheaded curbs to prevent material from falling into the pit.

(g) Floating equipment such as dredges and pile drivers shall maintain a signal system to shore in the event of an emergency.

(h) The distribution of machinery on floating equipment shall be such that the completed unit floats on an even keel.

(i) Fuel tanks below decks shall be vented to outside of hull and vents shall be equipped with flame arrestors.

WAC 296-155-620 (Cont.)

(j) All hull compartments shall be ventilated. No person shall work in hull compartments until it is shown the compartments contain no flammable or toxic concentrations.

(k) Light fixtures installed or used within the hull shall be explosion proof.

(l) All floating rigs shall be equipped with ladderways extending from the deck to the waterline where the deck is more than 36 inches above the water. A wire rope shall be hung along both sides of the hull or float and so hung that it shall be at all times near or at the waterline.

(m) Doors of deck houses where deck house sets within 36" of edge of deck and doorways in hull shall be equipped with guard rails or cross chains.

(n) Deck houses shall have a substantial grab rail installed on all sides where such installation will not interfere with operations.

(o) Pile driver and dredge fairlead sheaves, and spudline sheaves shall be guarded to prevent workers or tools being drawn into them.

(p) All work deck shall be kept clear of debris, unnecessary tools and equipment in order to minimize the stumbling hazard. Lines shall be coiled, tools stored and material stacked clear of working spaces.

(q) Night operations shall be adequately lighted for all activity while work is in progress and shall be maintained until workers leave the work area.

(r) Electrical installation and equipment shall be installed and maintained in compliance with the National Electric Code.

(s) All walkways over water and on dredge pontoon discharge pipe lines shall be a minimum of 20" in width with standard handrail along one side on structures and gang planks. Walkways on pontoon lines may be equipped with hand lines in lieu of standard handrail.

(t) Adequate fire extinguishing equipment shall be provided and maintained in a serviceable condition.

(u) Protective equipment shall be used when working with creosote timbers. Protective creams shall be used on exposed skin surfaces and gloves and eye protection worn especially when driving piles.

(v) Pulling piles with hammer or pile line rigged through the head block is prohibited unless driver and rigging are designed to safely withstand the imposed strain.

(w) Truck runways and platforms shall be equipped with a wheel guard on all outside edges. Top of wheel guards shall be a minimum of 10 inches above deck.

(x) Use of foot blocks at base of leads for hammer line or pile line is prohibited.

[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-155-620, filed 7/20/94, effective 9/20/94; 91-03-044 (Order 90-18), § 296-155-620, filed 1/10/91, effective 2/12/91; Order 76-29, § 296-155-620, filed 9/30/76; Order 74-26, § 296-155-620, filed 5/7/74, effective 6/6/74.]

WAC 296-155-625 Site clearing.

(1) General.

(a) The word **"clearing"** means the removal of trees, stumps, logs, brush, debris and rubbish from the surface of the ground in preparation of a site for construction work of any kind. The removal of trees and logs shall be in accordance with the requirements of chapter 296-54 WAC.

(b) All equipment and tools such as axes, sledges, wedges, saws, springboards, etc., shall be maintained in a safe condition and guarded with standard safeguards.

(c) Fallers shall give warning to brushing crews, buckers and other persons in the vicinity where a tree is being felled; taking notice that such persons are not only out of the reach of tree, but also out of danger of possible sidewinders, snags or other trees which may be knocked over by the tree being felled.

(d) Trees must not be felled toward and within range of a traveled road or operational railroad unless a flagger is used to stop all approaching persons, vehicles, or railroad equipment. Flaggers and flagging activities at the site must comply with the requirements of WAC 296-155-305.

(e) Clearing crews shall not be placed immediately below other crews working on hillsides where there is a possible danger of skidding or rolling trees, moving earth or rock.

(f) Pioneer roads on clearing operations shall be constructed to safely accommodate all equipment moved over road.

(g) Hazardous standing and down timber, rocks, etc., shall be moved from upper sides of cuts on side hill operations.

(h) Care shall be exercised in the use of oil for burning brush or timber.

(i) Employees engaged in site clearing shall be protected from hazards of irritant and toxic plants and suitably instructed in the first-aid treatment available.

(j) All equipment used in site clearing operations shall be equipped with rollover guards meeting the requirements of this chapter. In addition, rider-operated equipment shall be equipped with an overhead and rear canopy guard meeting the following requirements:

(i) The overhead covering on this canopy structure shall be of not less than 1/8-inch steel plate or 1/4-inch woven wire mesh with openings no greater than 1 inch, or equivalent.

(ii) The opening in the rear of the canopy structure shall be covered with not less than 1/4-inch woven wire mesh with openings no greater than 1 inch.

(iii) Use of 1/2 inch thick plastic sheets or other thicknesses of plastic panels derived from polycarbonate, acrylic, cellulose acetate butyrate which provides equivalent or better protection against particular hazards involved is acceptable in lieu of 1 or 1 3/4 inch open mesh material.

(A) All panels shall be installed in a manner which can withstand the initial impact, and maintain the protective barrier integrity; and

WAC 296-155-625 (Cont.)

(B) All panels must be labeled or marked to distinguish between acceptable and inferior materials.

(k) In addition to observance of the general safety and health standards;

(i) The employer shall assume the responsibility of work assignment so that no worker shall be required to work in a position or location so isolated as to not be within ordinary calling distance of another person who can render assistance in case of emergency. In any operation where cutting, felling trees, loading, or a combination of these duties is carried on, there shall be a minimum crew of two persons who shall work as a team and shall be in visual or voice contact with one another. If one worker at these operations is required to be left alone for a period of time, the worker shall be contacted by another person at reasonable intervals not to exceed fifteen minutes unless such practice can be established to be impractical.

(ii) This does not apply to operators of motor vehicles, watchpersons or certain other jobs which, by their nature, are singular worker assignments. However, a definite procedure for checking the welfare of all workers during working hours shall be instituted and all workers so advised.

[Statutory Authority: RCW 49.17.010, .040, .050; Chapter 239, Laws of 2000 (ESHB 2647); and Chapter 34.05 RCW. 01-04-015 (Order 00-03), § 296-155-625, filed 01/26/01, effective 02/28/01. Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-155-625, filed 7/20/94, effective 9/20/94; 91-03-044 (Order 90-18), § 296-155-625, filed 1/10/91, effective 2/12/91. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-625, filed 1/21/86; Order 74-26, § 296-155-625, filed 5/7/74, effective 6/6/74.]

WAC 296-155-630 Marine operations and equipment.

(1) Material handling operations.

Operations fitting the definition of **"material handling"** shall be performed in conformance with applicable requirements of "Safety and health regulations for longshoring." The term **"longshoring operations"** means the loading, unloading, moving, or handling of construction materials, equipment and supplies, etc. into, in, on, or out of any vessel, from a fixed structure or shore-to-vessel, vessel-to-shore or fixed structure or vessel-to-vessel.

(2) Access to barges.

(a) Ramps for access of vehicles to or between barges shall be of adequate strength, provided with side boards, well maintained, and properly secured.

(b) Unless employees can step safely to or from the wharf, float, barge, or river towboat, either a ramp, meeting the requirements of (a) of this subsection, or a safe walkway, shall be provided.

(c) Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured.

(d) A Jacob's ladder shall either hang without slack from its lashings or be pulled up entirely.

(e) When the upper end of the means of access rests on or is flush with the top of the bulwark, substantial steps, properly secured and equipped with at least one substantial hand rail approximately 33 inches in height, shall be provided between the top of the bulwark and the deck.

WAC 296-155-630 (Cont.)

(f) Obstructions shall not be laid on or across the gangway.

(g) The means of access shall be adequately illuminated for its full length.

(h) Unless the structure makes it impossible, the means of access shall be so located that the load will not pass over employees.

(3) Working surfaces of barges.

(a) Employees shall not be permitted to walk along the sides of covered lighters or barges with coamings more than 5 feet high, unless there is a 3-foot clear walkway, or a grab rail, or a taut handline is provided.

(b) Decks and other working surfaces shall be maintained in a safe condition.

(c) Employees shall not be permitted to pass fore and aft, over, or around deckloads, unless there is a safe passage.

(d) Employees shall not be permitted to walk over deckloads from rail to coaming unless there is a safe passage. If it is necessary to stand at the outboard or inboard edge of the deckload where less than 24 inches of bulwark, rail, coaming, or other protection exists, all employees shall be provided with a suitable means of protection against falling from the deckload.

(4) First-aid and lifesaving equipment.

(a) Provisions for rendering first aid and medical assistance shall be in accordance with Part B of this Chapter.

(b) The employer shall ensure that there is in the vicinity of each barge in use at least one U.S. Coast Guard-approved 30-inch life ring with not less than 90 feet of line attached, and at least one portable or permanent ladder which will reach the top of the apron to the surface of the water. If the above equipment is not available at the pier, the employer shall furnish it during the time that the employer is working the barge.

(c) Employees walking or working on the unguarded decks of barges shall be protected with U.S. Coast Guard-approved personal flotation devices such as Type I PFD, Type II PFD, Type III PFD, or Type V PFD, or their equivalent, pursuant to 46 CFR 160 (Coast Guard Lifesaving Equipment Specifications) and 33 CFR 175.23 (Coast Guard table of devices equivalent to personal flotation devices). Ski belt or inflatable type personal flotation devices are specifically prohibited.

(5) Diving operations. (Reserved.)

[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-155-630, filed 7/20/94, effective 9/20/94; Order 76-29, § 296-155-630, filed 9/30/76; Order 74-26, § 296-155-630, filed 5/7/74, effective 6/6/74.]